In the claims:

Please cancel claims 14-22 and add new claims 23 - 43 as follows:

23. A silicon-germanium hetero bipolar transistor comprising:
- a collector layer formed as a lattice made substantially of silicon,
- an emitter layer formed as a lattice made substantially of silicon,
- a base layer formed as a lattice made substantially of boron-doped silicon-germanium,
wherein carbon is incorporated in at least one of said collector, base, and emitter layers in a concentration between 10^{18} cm^{-3} and 10^{21} cm^{-3}, so as to cause a change in the lattice of less than $5x10^{-3}$.

24. A method for providing a silicon-germanium hetero bipolar transistor comprising:
- a step of providing a collector layer as a lattice made substantially of silicon,
- a step of providing an emitter layer as a lattice made substantially of silicon,
- a step of providing a base layer as a lattice made substantially of boron-doped silicon-germanium,
wherein carbon is incorporated in at least one of said collector, base, and emitter layers in a concentration between 10^{18} cm^{-3} and 10^{21} cm^{-3}, so as to cause a change in the lattice of less than $5x10^{-3}$.

25. A silicon-germanium hetero bipolar transistor comprising
- a collector layer made substantially of silicon,
- an emitter layer made substantially of silicon,
- a base layer made substantially of doped silicon-germanium, wherein carbon is incorporated in at least one of said collector, base, and emitter layers in a concentration between 10^{18} cm^{-3} and 10^{21} cm^{-3}, and wherein said doped silicon-germanium base layer is disposed between said emitter layer and said collector layer, said base layer immediately adjacent to said emitter layer on one side and to said collector layer on the other side.

26. The silicon-germanium hetero bipolar transistor of claim 25, wherein carbon is incorporated in only said collector and base layers.

27. The silicon-germanium hetero bipolar transistor of claim 25, wherein carbon is incorporated in only said emitter and base layers.

28. The silicon-germanium hetero bipolar transistor of claim 25, wherein carbon is incorporated in only said collector, emitter, and base layers.

29. The silicon-germanium hetero bipolar transistor of claim 25, wherein carbon is incorporated in only one of said collector, emitter, or base layers.

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30. The silicon-germanium hetero bipolar transistor of claim 25, wherein germanium is incorporated in said base layer in a concentration of between 8 atomic % and 30 atomic %.

31. The silicon-germanium hetero bipolar transistor of claim 25, wherein the concentration of germanium in said base layer is in the range of 20 atomic % to 28 atomic %.

32. The silicon-germanium transistor of claim 25, wherein said base layer has a thickness between 5 nm and 60 nm as measured from said collector layer to said emitter layer.

33. The silicon-germanium transistor of claim 25, wherein said base layer has a thickness between 35 nm and 40 nm as measured from said collector layer to said emitter layer.

34. The silicon-germanium transistor of claim 25, wherein said base layer has a thickness as measured from said collector layer to said emitter layer, and wherein the product of the germanium concentration in said base layer and the thickness of said base layer is in the range of 50 atomic %*nm to less than 1500 atomic %*nm.

35. The silicon-germanium transistor of claim 25, wherein said base layer has a thickness as measured from said collector layer to said emitter layer, and wherein the product of the germanium concentration in said base layer and the thickness of said base layer is in the range of 50 atomic %*nm to 660 atomic %*nm.

36. The silicon-germanium transistor of claim 25, wherein said base layer has a thickness as measured from said collector layer to said emitter layer, and wherein the product of the germanium concentration in said base layer and the thickness of said base layer is in the range of 520 atomic %*nm to 660 atomic %*nm.

37. The silicon-germanium transistor of claim 25, wherein the concentration profile of germanium in said base layer between said emitter layer and said collector layer has the shape of a rectangle.

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38. The silicon-germanium transistor of claim 25, wherein the concentration profile of germanium in said base layer between said emitter layer and said collector layer has the shape of a triangle.

39. The silicon-germanium transistor of claim 25, wherein the concentration profile of germanium in said base layer between said emitter layer and said collector layer has the shape of a trapezoid.

40. The silicon-germanium transistor of claim 25, wherein said base layer is doped with boron in a concentration in the range from $5*10^{18}$ cm^{-3} to $10^{21}cm^{-3}$.

41. The silicon-germanium hetero bipolar transistor of claim 25, wherein said base layer has a thickness, and said base layer is doped with boron in a concentration between 5 10^{18} cm^{-3} and $10^{21}cm^{-3}$ over the entire thickness of said base layer between the emitter layer and the collector layer.

42. The silicon-germanium hetero bipolar transistor of claim 25, wherein carbon is incorporated in said collector, base, and emitter layers in a concentration between 10^{18} cm^{-3} and 10^{21} cm^{-3}, said transistor further comprising

- a doped region disposed on said emitter layer further from said base layer, wherein said doped region has a T-shaped cross section profile.

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43. The silicon-germanium hetero bipolar transistor of claim 25, wherein each of said collector layer, emitter layer and said base layer is formed as a lattice, and the incorporation of carbon causes a change in the lattice less than $5x10^{-3}$.